

COMMON IGC QUESTIONS FROM PAPER 1

1	Elements of health & Safety Management System	<p>Policy</p> <p>Organisation</p> <p>Planning</p> <p>Implementing</p> <p>Measuring Performance</p> <p>Auditing with Checking and Corrective Actions</p> <p>Reviewing Performance for Continual Improvement</p>
2	Accident investigation –reasons	<p>May be a legal requirement</p> <p>Insurance Requirement</p> <p>Establish Root Cause</p> <p>Prevent a Recurrence</p> <p>Identify Costs</p> <p>Improve a Safety Culture</p> <p>To Learn From the Event</p> <p>Improve Morale</p>
3	An accident case – 4 immediate causes & 4 underlying causes(root causes)	<p>Immediate:</p> <ol style="list-style-type: none"> 1. Lack of caring 2. Lack of perception 3. Wilful Cause (on purpose) 4. Lack of attention <p>Root Causes</p> <ol style="list-style-type: none"> 1. Management System Failure 2. Negative safety culture 3. Lack of a safe system of work 4. Inadequate information, instruction, training & supervision

4	Information in an accident investigation report	Date Time Location Injured person(s) Witnesses Injuries / losses sustained Equipment / tools involved Costs estimated / known Who investigated Introduction Summary Main body – observations, legal breaches, likely enforcement action Recommendation Conclusions Circulation list
5	Outline the factors that may determine the level of supervision an employee should receive during their initial period within a company.	Complexity of the work to be undertaken Age of the individual The attitude of the individual Any special needs Previous experience Previous situation reports (past accident situations) The peer group attitude Type of PPE that may be required and the need for correct use (i.e. harness – can fall into incorrect use – over a time period) Level of supervision available Type of work being undertaken Substances used and likely effects Legal requirements

6	Ways of reducing the likelihood of human error in the workplace.	<p>Information</p> <p>Instruction</p> <p>Training</p> <p>Supervision</p> <p>Risk Assessment</p> <p>Consultation</p> <p>Adequate rest / recovery periods</p> <p>Monitoring performance</p> <p>Tasks fit the person and their abilities and capabilities</p>
7	Reasons why the seriousness of a hazard may be underestimated by someone exposed to it	<p>Not been exposed to the situation in the past</p> <p>Has worked in the same job without ill-effect</p> <p>Their attitude – does not care</p> <p>The person may be tired</p> <p>Not had awareness training (initial or refresher)</p> <p>Over-reliance on PPE</p> <p>Controls not functioning e.g. LEV</p> <p>Alarms not operational (CO H₂S)</p> <p>Effects of medication / drugs / Alcohol</p> <p>Cumulative impacts of failures – one adding to another and having more serious consequences</p>
8	Ways in which managers can motivate employees to work safely.	<p>Lead by example</p> <p>Recognising peoples efforts</p> <p>Rewarding efforts</p> <p>Listening to employees concerns</p> <p>Investigating accidents and near misses</p> <p>No short cutting safety</p> <p>Explaining why certain actions have to be taken (why has the PPE got to be worn)</p> <p>Consultation e.g. meetings periodically</p> <p>Training, Instruction and Information provision</p>

9	Meaning of the term 'safe system of work'.	<p>A means of working in a safe manner :</p> <p>A safe system of work is the systematic examination of a task in order to identify all hazards.</p> <p>The aim is to produce a safe work method that will eliminate or reduce the risks associated with the identified hazards.</p> <p>It is important to involve employees that carry out the work or with detailed knowledge of the activity, so that the system of work produced is effective and practical as well as safe.</p> <p>Involving employees with the process helps them to understand why this level of control has to be established and maintained.</p>
10	Sources of information that may need to be consulted when developing a safe system of work.	<p>The safe system of work will include how the task is to be done, what equipment is required, what communication needs must be met and who can authorise variations to the procedure.</p> <p>Risk Assessment (potential hazards)</p> <p>Job Descriptions</p> <p>Permit to work conditions</p> <p>Description of the work to be done?</p> <p>Existing instructions or procedures that may need to be adopted / adapted</p> <p>Who is required to do the work and what skills and abilities will be needed</p> <p>Supervisory requirements and competencies based work to be done</p> <p>Instructions for any special tools, protective clothing or equipment (e.g. breathing apparatus) that may be needed?</p> <p>Availability of special tools, protective equipment</p> <p>Training records of the people who are to do the work – are they adequately trained</p> <p>Specific isolations and locking-off needs for the work to be done safely?</p> <p>What other site activities are occurring - will the work interfere them or other activities create a hazard to the people doing the work</p> <p>Determination of the respective permissions</p> <p>Available communication facilities - how will the people doing the work communicate with each other</p> <p>Emergency procedures and preparedness plans – need to involve emergency procedures – local rules</p>

11	Factors that could be considered when assessing the health and safety competence of a contractor	<p>Check the existence of a safety policy.</p> <p>Examine the contractor's procedures for ensuring health and safety at work.</p> <p>Analyse the quality of the contractor's induction and on-going training programmes.</p> <p>Determine the level and coverage afforded by the contractor's insurance policies.</p> <p>Determine whether the contractor is a member of a reputable trade association.</p> <p>Has the contractor undertaken similar work / projects</p> <p>Has the contractor had enforcement action taken against them</p> <p>Do they come with good references</p> <p>Are the method statements suitable and sufficient</p> <p>The level of supervision that they will deploy</p> <p>The system used for managing the contract must be suited to the type of work being undertaken – reviewing previous contracts may help with this</p> <p>The responsibilities of each of the parties involved should be clearly defined, agreed and allocated before the start of the project</p> <p>The terms of the contract should require work to be undertaken in accordance with defined and agreed working standards and budgetary allocation should be made for undertaking the work in the defined manner</p> <p>Adequate backing and authority must be given to management contractors so that they can effectively undertake site management activities.</p>
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12	Describe the criteria that must be met for the risk assessment to be deemed 'suitable and sufficient'	<p>A suitable and sufficient risk assessment should identify significant risks arising out of work.</p> <p>Trivial risks can usually be ignored, as can risks arising from the routine activities associated with life in general, unless the work activity compounds those risks or there is evidence of significant relevance to the particular work activity.</p> <p>The degree of sophistication of the risk assessment will be directly linked to the size and nature of the undertaking and the hazards and risks likely to be encountered.</p> <p>Employers should ensure that where specialist advisers are used, those advisors have sufficient understanding of the particular work activity they are advising on.</p> <p>Everyone involved in that process - employer, employees and specialist will often need to be all working together.</p> <p>Employers in the UK for example are expected to take reasonable steps, such as reading Health and Safety Executive guidance notes, the trade press etc., to familiarise themselves with the hazards and risks at their work.</p>
13	Factors to be considered while developing a health & safety training programme for an organization	<p>The objectives of the training - what do you hope to achieve by giving the training and what the participants will obtain from it</p> <p>The trainer - whether in-house or external - will have a major impact on the effective presentation of the training and thus the information retention of the participants</p> <p>The venue in which the training is held can have a significant effect on the training in general if it is in poor condition or poorly resourced, the training will be less successful than if it is at least in a good condition and comfortable</p> <p>The number of people involved in the training will affect the quality of the training - in some cases larger numbers allow for greater group interaction, which can help, whilst in other cases smaller numbers allow for more teacher - participant interaction which can also help</p> <p>The means of delivering the teaching will significantly affect most of the other factors here, although it does not necessarily have to be the deciding factor</p> <p>The company culture and the support from the management team is also a significant factor in the planning of training delivery</p>

14	Various measures that might be used to assess the effectiveness of the training	<ul style="list-style-type: none"> Participation of attendees Level of response Ability to correctly respond to questions Being able to demonstrate understanding On the job follow-up for compliance Reduction of accidents / incidents in aspects of the training delivered Formal feedback from attendees Personal feedback Others asking for similar training Attentiveness throughout
15	Reasons why it is important for an employee to keep the training records of his employees	<ul style="list-style-type: none"> May be legal requirements May assist in developing training plans / identifying gaps May be required for evidence following an incident / accident May reduce penalties in a court of law Insurance premium reviews Completing risk assessments CPD for the worker To save duplication of training Management system compliance

16	Outline the ways in which employers can motivate their employees to comply with HSE	<p>A clear and evident commitment from the most senior manager downwards, which provides a climate for safety in which management's objectives and the need for appropriate standards are communicated and in which constructive exchange of information at all levels is positively encouraged</p> <p>An analytical and imaginative approach identifying possible routes to human factor failure. This may well require access to specialist advice</p> <p>Procedures and standards for all aspects of critical work and mechanisms for reviewing them</p> <p>Effective monitoring systems to check the implementation of the procedures and standards</p> <p>Incident investigation and the effective use of information drawn from such investigations</p> <p>Adequate and effective supervision with the power to remedy deficiencies when found.</p> <p>Effective health and safety management system</p> <p>Encouraging a positive health and safety culture</p> <p>Ensuring adequate and competency of supervision</p> <p>Insisting on effective incident reporting and analysis</p> <p>Willing to learn from experience</p> <p>Clearly visible health and safety leadership</p> <p>A suitable team structures</p> <p>Efficient communication systems and practices</p> <p>Providing adequate staffing levels</p> <p>Ensuring suitable work patterns are implemented</p> <p>Recognition and reward</p>
17	Factors why accidents needs to be reported	<p>Legal Requirement</p> <p>Allow investigation</p> <p>To establish immediate, underlying and root causes</p> <p>To prevent a recurrence following implementation of recommendations</p> <p>A requirement of the management system</p> <p>Accurate statistics to be maintained</p> <p>Allows the identification of trends thus introduction of preventative measures</p> <p>To ensure appropriate contingencies into the future</p>

18	Factors that discourage the employees from reporting accidents	<p>Blame culture</p> <p>Prone to disciplinary action</p> <p>Feeling of guilt</p> <p>Loss of incentives</p> <p>Jeopardises advancement / promotion</p> <p>To many formalities</p> <p>Embarrassment</p> <p>May be used as a poor example to others (pride)</p>
19	Why is it important for an organization to set targets in terms of HSE performance	<p>Allows the comparison of health and safety performance to be measured</p> <p>Measurement allows management</p> <p>Allows comparisons with others – benchmarking</p> <p>To identify if KPI's are being met</p> <p>To identify if compensative measures are required (not waiting too long to take action)</p> <p>To identify organisational needs (training, guidance)</p> <p>Proof of achievement or not as the case may be</p> <p>To give the organisation and its employees something to aim for / surpass</p> <p>To identify health and safety compliance</p> <p>To identify if introduced controls are working</p>
20	6 types of targets in terms of HSE	<p>Reduction in the number of accidents</p> <p>Reduction in the number of a particular type of accident / incident / type of ill health</p> <p>Year on year comparisons – continual improvement</p> <p>Reduction in the total number of lost days</p> <p>Reduction in accident severity</p> <p>Benchmarking within / outside the organisation</p> <p>Number of training delivered</p> <p>Number of assessments reviewed</p> <p>Number of inspections undertaken</p> <p>Reduction in the number of non-compliances</p> <p>Reduction in the number of serious non-compliances</p> <p>A reduction in the number of days to resolve non-compliances</p>

21	Contractor management – evaluation of contractors	<p>Contractor evaluation could be something as simple as ensuring that they deliver against the terms of the contract.</p> <p>Are they providing and maintaining plant and systems of work which are, so far as is reasonably practicable, safe and without risks to health</p> <p>Are they taking of steps, so far as is reasonably practicable, to ensure safety and absence of risks to health in connection with the use, handling, storage and transport of articles and substances</p> <p>Are they providing such information, instruction, training and supervision as necessary to ensure, so far as is reasonably practicable, the health and safety at work of their employees</p> <p>Are they maintaining places of work that are safe and without risks to health, so far as is reasonably practicable, and the provision of a safe means of access to and egress from the workplace</p> <p>Are they providing and maintaining a working environment that, so far as is reasonably practicable, is safe and without risks to health and is adequately provided with facilities and arrangements for employees' welfare at work.</p> <p>Are accident levels within reasonable expectations for the type of work undertaken</p> <p>Is the level of supervision appropriate to the skill levels present or the risks / hazards posed</p>
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22	Pro-Active monitoring & reactive monitoring	<p>Proactive measures of performance that monitor compliance with the OH&S management programme, operational criteria and applicable legislation and regulatory requirements;</p> <p>This should contain the elements necessary to have a proactive system and should include:</p> <ul style="list-style-type: none"> a) Monitoring of the achievement of specific plans, established performance criteria and objectives; b) The systematic inspection of work systems, premises, plant and equipment; c) Surveillance of the working environment, including work organisation; d) Surveillance of workers' health, where appropriate, through suitable medical monitoring or follow-up of workers for early detection of signs and symptoms of harm to health in order to determine the effectiveness of prevention and control measures; and e) Compliance with applicable national laws and regulations, collective agreements and other commitments on OSH to which the <i>organisation</i> subscribes <p>Reactive measures of performance to monitor accidents, ill health, incidents (including near-misses) and other historical evidence of deficient OH&S performance;</p> <p>Should include the identification, reporting and investigation of:</p> <ul style="list-style-type: none"> a) Work-related injuries, ill health (including monitoring of aggregate sickness absence records), diseases and incidents; b) Other losses, such as damage to property; c) Deficient safety and health performance, and OSH management system failures; and d) Workers' rehabilitation and health-restoration programmes.
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23	Outline ways in which health & safety culture can be improved	<p>Clear and active senior management commitment to health and safety</p> <p>The needs of production and health and safety properly balanced with pressure for production controlled against that for health and safety</p> <p>Sufficient resources devoted to health and safety</p> <p>Maximum partnership between management and the workforce based on a participative relationship between staff at all levels</p> <p>Humanistic and non-authoritarian style of management</p> <p>High senior and line management visibility on the shop floor</p> <p>Frequent and informal communication between all levels</p> <p>Quality training given to management and the workforce</p> <p>Frequent and high-quality training for general safety and safe skills</p> <p>High levels of job satisfaction</p> <p>Ergonomic plant design and layouts</p> <p>Workforce selected for their safety attitudes and behaviours.</p>
24	List practical means in which managers can involve their staff in the improvement of health & safety	<p>Training</p> <p>Information</p> <p>Instruction</p> <p>Communication</p> <p>Consultation</p> <p>Meetings</p> <p>Safety Committees</p> <p>Suggestion schemes</p> <p>Joint inspections</p> <p>Recognition and reward</p> <p>Leading by example</p> <p>Workplace inspections</p>

25	Factors to be considered while developing a safe system of work	<p>The safe system of work will include how the task is to be done, what equipment is required, what communication needs must be met and who can authorise variations to the procedure.</p> <p>Risk Assessment (potential hazards)</p> <p>Job Descriptions</p> <p>Permit to work conditions</p> <p>Description of the work to be done?</p> <p>Existing instructions or procedures that may need to be adopted / adapted</p> <p>Who is required to do the work and what skills and abilities will be needed</p> <p>Supervisory requirements and competencies based work to be done</p> <p>Instructions for any special tools, protective clothing or equipment (e.g. breathing apparatus) that may be needed?</p> <p>Availability of special tools, protective equipment</p> <p>Training records of the people who are to do the work – are they adequately trained</p> <p>Specific isolations and locking-off needs for the work to be done safely?</p> <p>What other site activities are occurring - will the work interfere them or other activities create a hazard to the people doing the work</p> <p>Determination of the respective permissions</p> <p>Available communication facilities - how will the people doing the work communicate with each other</p> <p>Emergency procedures and preparedness plans – need to involve emergency procedures – local rules</p>
26	Why PPE is taken as the last resort	<p>It is a last resort because it is the difficult to guarantee their effectiveness in terms of selection, maintenance and usage.</p> <p>It can also be frequently quite expensive and not always comfortable to wear for the employees.</p> <p>It will only protect the person wearing it</p> <p>It is seldom 100% effective</p> <p>It can be awkward to wear, which can affect a worker's performance or cause other risks to arise.</p>

27	Agenda of a safety committee meeting	<p>Name of attendees</p> <p>Review of last meeting minutes and acceptance</p> <p>Topic to be discussed</p> <p>Review of statistics and trends of incidents, near miss incidents and reportable diseases to identify unsafe or unhealthy conditions and practices and to communicate recommendations for corrective action both to the relevant managers and to the workforce.</p> <p>Consideration of health and safety issues raised by members of the committee.</p> <p>Consideration of any safety monitoring that has taken place, for example safety audits, and any recommendations that they make.</p> <p>Assessment of employee health and safety training, communication and publicity within the workplace.</p> <p>Development and suggestions for implementation of the safety procedures arising out of the safe systems of work through the safety policy.</p> <p>Consideration of any reports, advice or other information provided by the enforcement agency.</p> <p>Accident report discussion</p> <p>Tour of a workplace</p> <p>Close (date of next meeting, etc)</p>
28	Why young worker are at greater risk	<p>Their inexperience,</p> <p>Their lack of awareness of risks</p> <p>Their general immaturity</p> <p>Their want to explore</p> <p>Their want to explore</p> <p>Their lack of responsibility</p> <p>Susceptibility to hazardous substances and some work processes</p> <p>Sometimes a lack of respect for authority</p>

29	How to minimise the risk to young employees	<p>Provision of induction training taking into considerations the limitations of the young person</p> <p>Close supervision (sometimes referred to as mentoring) by a more experienced and responsible co-worker</p> <p>Specific health surveillance where working conditions dictate</p> <p>The establishment of clear lines of communication so as to remove any areas of doubt or uncertainty</p> <p>Restricting the work that the young person is expected to undertake</p> <p>Restricting the hours that the young person is permitted to work with regard to national standards</p> <p>Any national / legislative restrictions on young persons carrying out specific tasks and / or activities at all or during particular periods.</p> <p>Ensuring that any of the PPE provided is suitable and sufficient for the young person given their body shape, size, etc.</p>
30	Meaning of statement of intent, arrangements, etc.	<ol style="list-style-type: none"> 1. A statement of the general policy towards health and safety 2. The organisation of responsibilities and accountabilities - throughout the organisation 3. The arrangements or means of achieving the aims and objectives

31	Policy review – when	<p>The creation of a new department, for example, an export department when foreign business increases.</p> <p>The introduction of a new process, such as a solvent-based component cleaning operation.</p> <p>Take-overs or mergers: the print room manager could be given additional responsibilities for packing, following a merger with a distribution company.</p> <p>Transfer of responsibilities from one manager or director to another.</p> <p>Closing down or selling part of the business, since the policy must be relevant, so references to a non-existent part of the organisation must be removed.</p> <p>Change of premises (which will alter such arrangements as fire safety procedures, evacuation and assembly, or alarm testing).</p> <p>Changes in legislation, approved codes of practice, codes of practice, guidance notes, ISO Standards, etc.</p> <p>Following an accident</p> <p>Following adverse comments from enforcers, insurers, clients, etc</p>
32	Categories of persons who might be useful in an internal accident investigation	<p>A balance has to be struck between having sufficiently trained accident investigators and the resources required to achieve this.</p> <p>The selection of investigators will also be dictated to some extent by the events which are chosen for investigation.</p> <p>Manager with authority to make decisions</p> <p>Specialist</p> <p>Safety Person</p> <p>Someone involved in the incident</p> <p>Person in charge of the work area</p> <p>Worker representative</p> <p>Someone from the enforcing authority</p>

33	Why is PPE the last resort	<p>See 26 above</p> <p>It is a last resort because it is the difficult to guarantee their effectiveness in terms of selection, maintenance and usage.</p> <p>It can also be frequently quite expensive and not always comfortable to wear for the employees.</p> <p>It will only protect the person wearing it</p> <p>It is seldom 100% effective</p> <p>It can be awkward to wear, which can affect a worker's performance or cause other risks to arise.</p>
34	Define the term 'permit-to-work system'.	<p>A permit to work is a formal documented control process which takes account of all the foreseeable interactions between the worker, the environment and the associated hazards.</p> <p>It defines the procedures and precautions to be undertaken and the sequence in which they should be carried out.</p> <p>The permit to work approach is not in itself a safe system of work, but a very specific type of control.</p> <p>It is designed to prevent human errors, especially those of conflicting knowledge, incorrect assumptions and mixed messages.</p> <p>Certain types of activities and certain hazards require permit to work procedures as part of the safe system.</p>

35	Outline THREE types of work situation that may require a permit-to work system, giving reasons in EACH case for the requirement.	<p>Complex and highly hazardous situations</p> <p>Dangerous substances – Exposure and ill health</p> <p>Entry into explosives or inflammable atmospheres – explosions and fires</p> <p>Entry into non- respirable atmospheres – suffocation potential</p> <p>Confined spaces – dangerous atmospheres, work conditions</p> <p>Electrical work, especially high voltage – Contact with live electricity</p> <p>Pressurised systems and pressurised atmospheres – explosions, exposure leading to penetration</p> <p>Radioactive or biologically hazardous environments – occupational ill health</p> <p>Breaking into pipelines containing hazardous materials, including chemicals, gases and steam – contact or exposure to hazardous situations</p> <p>Hot work such as welding, in certain situations – fire and explosions</p> <p>Fumigation or other releases of hazardous substances – occupational health issues, contamination</p> <p>Maintenance work on plant and machinery – exposure to dangerous parts, entrapment, entanglement, nip points, etc</p> <p>Working at height – fall from height</p> <p>Working in excavations – collapse of excavation and burying</p> <p>Cold work situations – fire or explosions from unintentional sparks</p>
36	Outline the factors to consider when carrying out a fire risk assessment of a workplace.	<p>Who could be harmed – people at risk</p> <p>What could be harmed - assets</p> <p>How could harm arise Hazards</p> <p>Control measures in place</p> <p>Presence of flammable substances</p> <p>Sources of heat</p> <p>Oxygen presence or oxidising situations</p>

37	Hierarchy of Risk Management Controls	<p>Avoiding Risks</p> <p>Elimination or Substitution</p> <p>Reducing Time or Limiting Exposure</p> <p>Isolation and / or Segregation</p> <p>Engineering Controls</p> <p>Safe System of Work</p> <p>Training and Information</p> <p>Personal Protective Equipment</p> <p>Welfare</p> <p>Monitoring and Supervision</p>
38	<p>Explain the purpose of</p> <ol style="list-style-type: none"> 1. Statement of intent 2. Arrangements 3. Organisation 	<p>A statement of the general policy towards health and safety:</p> <ol style="list-style-type: none"> 1. Shows management commitment from the top <p>The organisation of responsibilities and accountabilities - throughout the organisation</p> <ol style="list-style-type: none"> 2. Who is responsible for implementing the policy and lines of communication <p>The arrangements or means of achieving the aims and objectives</p> <ol style="list-style-type: none"> 3. What will be used to ensure that safe workplaces exist, the tools that allow management to manage in a safe and healthy way

39	Outline the typical issues included in the arrangement section of the Health & safety policy	<p>The arrangements section of the health and safety policy document should state how the organisation, through the responsibilities of the people identified in the organisation section, will carry out the general intentions given in the statement.</p> <p>This is the most company-specific part of the policy and should have details of procedures for controlling risks identified by the risk assessments.</p> <p>Arrangements and procedures will control the significant risks identified in the risk assessments, which can involve any combination of:</p> <ol style="list-style-type: none"> 1. Inspection 2. Maintenance 3. Operating procedures 4. Training, supervision or monitoring procedures which are needed to control an identified risk. <p>Risk assessments</p> <p>Safe system of work</p> <p>Emergency arrangements – fire / first aid – accident</p> <p>Training</p> <p>Permits to work</p> <p>Statistic gathering</p> <p>Accident / incident investigation</p> <p>Accident reporting</p> <p>Safety committee protocols</p> <p>Controlling exposure to workplace hazards</p> <p>Health monitoring</p>
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40	Reasons why Health & Safety Policy to be reviewed	<p>The creation of a new department, for example, an export department when foreign business increases.</p> <p>The introduction of a new process, such as a solvent-based component cleaning operation.</p> <p>Take-overs or mergers: the print room manager could be given additional responsibilities for packing, following a merger with a distribution company.</p> <p>Transfer of responsibilities from one manager or director to another.</p> <p>Closing down or selling part of the business, since the policy must be relevant, so references to a non-existent part of the organisation must be removed.</p> <p>Change of premises (which will alter such arrangements as fire safety procedures, evacuation and assembly, or alarm testing).</p> <p>Changes in legislation, approved codes of practice, codes of practice, guidance notes, ISO Standards, etc.</p> <p>Following an accident</p> <p>Following adverse comments from enforcers, insurers, clients, etc</p>
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41	Outline ways in which the health & safety culture of an organization can be improved	<p>Clear and active senior management commitment to health and safety</p> <p>The needs of production and health and safety properly balanced with pressure for production controlled against that for health and safety</p> <p>Sufficient resources devoted to health and safety</p> <p>Maximum partnership between management and the workforce based on a participative relationship between staff at all levels</p> <p>Humanistic and non-authoritarian style of management</p> <p>High senior and line management visibility on the shop floor</p> <p>Frequent and informal communication between all levels</p> <p>Quality training given to management and the workforce</p> <p>Frequent and high-quality training for general safety and safe skills</p> <p>High levels of job satisfaction</p> <p>Ergonomic plant design and layouts</p> <p>Workforce selected for their safety attitudes and behaviours.</p>
42	Explain term Risk using an example	<p>Risk is the likelihood or probability of that hazard causing harm coupled with the severity of harm</p> <p>The extent of risk covers whoever might be affected by a risk, i.e. the numbers of people who might be exposed and the consequences for them.</p> <p>Risk therefore reflects both the likelihood (chance / probability) that an event will occur and the severity of its outcome.</p>
43	Outline the factors that needs to be considered when selecting individuals to assist in carrying out health & safety risk assessment	<p>The over-riding factor here as with risk assessments generally is that the person who is assisting is competent to undertake the work expected of them.</p> <p>If there is doubt on any aspect of their competency then ISIT will have to be ensured in a bid to protect the assistant.</p> <p>The individuals concerned will have to be provided with suitable and sufficient PPE and be clear of their duties and responsibilities during their engagement.</p>

44	Outline the immediate and long terms actions that should be taken after a serious workplace injury accident	<p>Make sure the area is safe to enter to assist any injured person</p> <p>Obtain assistance for the injured person and secure any damage</p> <p>Call for external assistance</p> <p>Assist with any external investigations – police, etc</p> <p>Inform respective persons – management, HR, relatives, owner of assets, etc</p> <p>Gather internal investigation team</p> <p>Obtain facts</p> <ul style="list-style-type: none"> • Statements • Photos • Records – maintenance, training, risk assessments • Permits and safe systems of work <p>Analyse information</p> <p>Determine actions required</p> <p>Generate reports with action plans</p> <p>Follow-up</p> <p>Review risk assessments</p> <p>Review management system and related procedures</p> <p>Follow-up on actions progress</p>
45	Outline the reasons why an employee may require additional health & safety training at a later stage of employment with the organization	<p>As a matter of procedure</p> <p>To refresh in a bid to avoid complacency</p> <p>To identify further training needs</p> <p>To gather feedback on what is going right and or not so well</p> <p>Update records</p> <p>Update knowledge of the person with respect to say technology advances, industry knowledge, legislation</p>

46	Outline ways of reducing the likelihood of human error in a workplace	<p>Exclusion strategies. Exclusion strategies make it impossible for the identified human error to occur. One such exclusion strategy is “mistake proofing.” For example, as consumers we cannot put a diesel fuel nozzle into an unleaded fuel tank’s opening.</p> <p>The pump’s design makes it impossible to make that error.</p> <p>Exclusion should be used in cases in which the potential human error can lead to catastrophic consequences.</p> <p>Prevention strategies. Prevention strategies are the next tier down from exclusion and are used where the risk of human error is not as critical. In other words, the investment in making the human error impossible is not justified, so we just want to find a more economical approach to make it difficult to commit that identified human error.</p> <p>Examples include the checklist a pilot completes before each flight and the surgical instrument count a nurse completes before and after a surgery.</p> <p>Fail-safe strategies. Contrary to the name, fail-safe strategies are invoked when we want to mitigate the consequences of human error instead of trying to prevent it from occurring in the first place.</p> <p>For example, stringent preventive maintenance efforts should be in place to ensure that equipment is calibrating according to the manufacturer’s specifications.</p> <p>If the calibration goes beyond set alarm limits, and that condition is not acknowledged and corrected immediately, catastrophic consequences could result.</p> <p>Competence improvements with more focused training and awareness</p> <p>ISIT</p> <p>Rest – reduce tiredness and fatigue</p> <p>Health monitoring to determine levels prior to deteriorating to an unacceptable level</p> <p>Follow-up after incidents – establish why things went wrong – contributors and causes</p> <p>Engineering out areas where error may arise e.g. control conflicts</p>
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47	Four reasons why the seriousness of hazard may be underestimated by a person exposed to it	<p>Attitude is the tendency to behave in a particular way in a certain situation. Attitudes are influenced by the prevailing health and safety culture within the organization, the commitment of the management, the experience of the individual and the influence of the peer group. Peer group pressure is a particularly important factor among young people and health and safety training must be designed with this in mind by using examples or case studies that are relevant to them. Behaviour may be changed by training, the formulation and enforcement of safety rules and meaningful consultation – attitude change often follows.</p> <p>Motivation is the driving force behind the way a person acts or the way in which people are stimulated to act. Involvement in the decision-making process in a meaningful way will improve motivation as will the use of incentive schemes. However, there are other important influences on motivation such as recognition and promotion opportunities, job security and job satisfaction.</p> <p>Self-interest, in all its forms, is a significant motivator and personal factor.</p> <p>Perception is the way in which people interpret the environment or the way in which a person believes or understands a situation. In health and safety, the perception of hazards is an important concern.</p> <p>Many accidents occur because people do not perceive that there is a risk. There are many common examples of this, including the use of personal protective equipment (such as hard hats) and guards on drilling machines and the washing of hands before meals. It is important to understand that when perception leads to an increased health and safety risk, it is not always caused by a conscious decision of the individual concerned.</p> <p>The stroboscopic effect caused by the rotation of a drill at certain speeds under fluorescent lighting will make the drill appear stationary.</p> <p>It is a well-known phenomenon, especially among illusionists, that people will often see what they expect to see rather than reality. Routine or repetitive tasks will reduce attention levels leading to the possibility of accidents.</p> <p>Other personal factors which can affect health and safety include physical stature, age, experience, health, hearing, intelligence, language, skills, level of competence and qualifications.</p> <p>Finally, memory is an important personal factor since it is influenced by training and experience.</p> <p>The efficiency of memory varies considerably between people and during the lifetime of an individual.</p> <p>The overall health of a person can affect memory as can personal crises.</p>
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48	Outline ways in which managers can motivate their employees	<p>Motivation is the driving force behind the way a person acts or the way in which people are stimulated to act. Involvement in the decision-making process in a meaningful way will improve motivation as will the use of incentive schemes.</p> <p>However, there are other important influences on motivation such as recognition and promotion opportunities, job security and job satisfaction.</p> <p>Self-interest, in all its forms, is a significant motivator and personal factor.</p>
49	Outline the factors to be considered when assessing the risk to a long distance delivery driver	<p>The drivers competence</p> <p>Knowledge of procedures in case of incident / accident</p> <p>Hours of work (may be legal limits imposed)</p> <p>Routes and alternatives</p> <p>Time expectations</p> <p>Procedures in the event of not meeting expectations</p> <p>Contact numbers and details</p> <p>Information on the load being transported</p> <p>Break / stoppage requirements</p> <p>Adequacy of funds</p> <p>Security arrangements</p> <p>Check-in procedures with contact person(s)</p> <p>Technical information about the load and related emergency procedures</p> <p>Emergency equipment – spill kits, extinguishers, first aid</p> <p>Provision of suitable and sufficient PPE</p>
50	Explain how the accident data can be used to improve the health and safety performance of an organization	<p>It can identify weaknesses in the existing system</p> <p>Indications of areas of recurrence</p> <p>Identification as to persons at risk</p> <p>May indicate training / retraining needs</p> <p>Assist with insurance premiums – lower if reductions can be managed</p> <p>Indicate where additional risk controls are required</p> <p>Used to compare one site / department with another</p> <p>Learn from existing good practices</p> <p>Improvements in safety will drive moral and quality improvements</p> <p>Happy workforce tend to be a safer workforce</p>

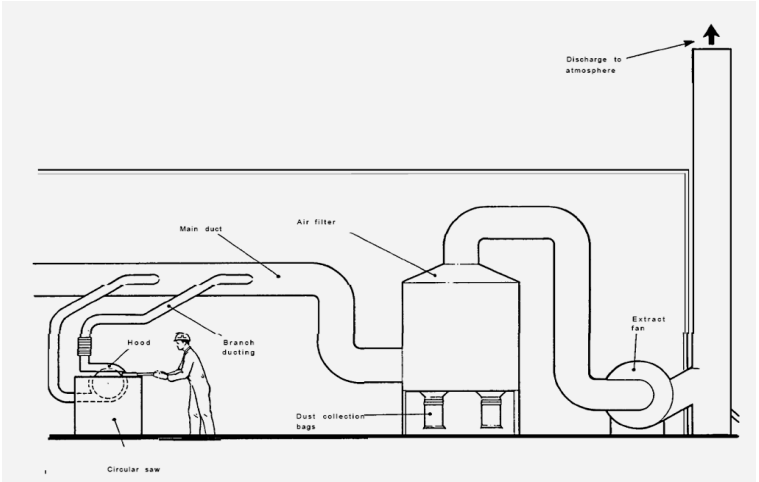
Common IGC Questions from Paper 2

1	Types of ionising radiation	Alpha Beta Gamma X-Rays Neutrons
2	MSDS what are the main points of the contents	<p>The section headings for a sixteen section MSDS are as follows:</p> <ul style="list-style-type: none">• Section 1 - Chemical Product and Company Identification• Section 2 - Composition/Information on Ingredients• Section 3 - Hazards Identification• Section 4 - First Aid Measures• Section 5 - Fire Fighting Measures• Section 6 - Accidental Release Measures• Section 7 - Handling and Storage• Section 8 - Exposure Control/Personal Protection• Section 9 - Physical and Chemical Properties• Section 10 - Stability and Reactivity• Section 11 - Toxicological Information• Section 12 - Ecological Information• Section 13 - Disposal Considerations• Section 14 - Transport Information• Section 15 - Regulatory Information• Section 16 - Other Information

3	Contractor Evaluation	<p>The selection of a contractor has to be a balanced judgement with a number of factors taken into account.</p> <p>Fortunately, a contractor who works well and meets the client's requirements in terms of the quality and timeliness of the work is likely also to have a better than average health and safety performance.</p> <p>Cost, of course, will have to be part of the judgement but may not provide any indication of which contractor is likely to give the best performance in health and safety terms.</p> <p>In deciding which contractor should be chosen for a task, the following should be considered:</p> <ul style="list-style-type: none"> • Do they have an adequate health and safety policy? • Can they demonstrate that the person responsible for the work is competent? • Can they demonstrate that competent safety advice will be available? • Do they monitor the level of accidents at their work site? • Do they have a system to assess the hazards of a job and implement appropriate control measures? • Will they produce a method statement, which sets out how they will deal with all significant risks? • Do they have guidance on health and safety arrangements and procedures to be followed? • Do they have effective monitoring arrangements? • Do they use trained and skilled staff who are qualified where appropriate? (Judgement will be required, as many construction workers have had little or no training except training on the job.)? • Can the company demonstrate that the employees or other workers used for the job have had the appropriate training and are properly experienced and, where appropriate, qualified? • Can they produce good references indicating satisfactory performance?
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4	What are the methods of heat transfer	<p>Convection</p> <p>Hot air becomes less dense and rises drawing in cold new air to fuel the fire with more oxygen.</p> <p>The heat is transmitted upwards at sufficient intensity to ignite combustible materials in the path of the very hot products of combustion and flames.</p> <p>This is particularly important inside buildings or other structures where the shape may effectively form a chimney for the fire.</p> <p>Conduction</p> <p>This is the transmission of heat through a material with sufficient intensity to melt or destroy the material and ignite combustible materials which come into contact or close to a hot section.</p> <p>Metals like copper, steel and aluminium are very effective or good conductors of heat.</p> <p>Other materials like concrete, brickwork and insulation materials are very ineffective or poor conductors of heat.</p> <p>Poor conductors or good insulators are used in fire protection arrangements. When a poor conductor is also incombustible it is ideal for fire protection.</p> <p>Care is necessary to ensure that there are no other hazards like a health problem with such materials.</p> <p>Asbestos is a very poor conductor of heat and is incombustible. Unfortunately, it has, of course, very severe health problems which now far outweigh its value as a fire protection material and it is banned in the UK, although still found in many buildings where it was used extensively for fire protection.</p> <p>Radiation</p> <p>Often in a fire the direct transmission of heat through the emission of heat waves from a surface can be so intense that adjacent materials are heated sufficiently to ignite.</p> <p>A metal surface glowing red-hot would be typical of a severe radiation hazard in a fire.</p> <p>Direct burning</p> <p>This is the effect of combustible materials catching fire through direct contact with flames which causes fire to spread, in the same way that lighting an open fire, with a range of readily combustible fuels is spread within a grate.</p>
5	The main principles of control for ionising radiation	<p>Time – Time / duration of exposure</p> <p>Distance from the source</p> <p>Shielding from the source</p> <p>Containment of the source</p>

6	The main hazards that may be present during demolition of a building	<p>Premature collapse of the structure</p> <p>Fire</p> <p>Explosion</p> <p>Dust</p> <p>Electricity if not disconnected</p> <p>Vibration</p> <p>Falling items</p> <p>Insects and vermin</p> <p>Asbestos</p> <p>Slip trip and falls</p> <p>Hidden hazards – cellars, buried services</p> <p>Intruders / unauthorised persons – salvaging, children</p>
7	Design of chair	<p>The chair should be</p> <ul style="list-style-type: none"> • Suitable for the person e.g. weight • Adjustable in height, • Stable (5 star base) • Arms and • Have an adjustable backrest (lumber support). <p>If the knees of the user are lower than the hips when seated, then a footrest should be provided.</p>
8	VDU – hazards	<p>There are three basic ill-health hazards associated with DSE. These are:</p> <ol style="list-style-type: none"> 1. Musculoskeletal problems 2. Visual problems 3. Psychological problems. <p>A fourth hazard, of radiation, has been shown from several studies to be very small and is now no longer normally considered in the risk assessment.</p> <p>Similarly, in the past, there have been suggestions that DSE could cause epilepsy and there were concerns about adverse health effects on pregnant women and their unborn children. All these risks have been shown in various studies to be very low</p>

9	LEV - sketch the principal components	
10	Dust prevention	<p>Dust emissions can be prevented or reduced in four basic ways:</p> <ol style="list-style-type: none"> 1. Limiting the creation or presence of dust-sized particles. 2. Reducing wind speed at ground level. 3. Binding dust particles together. 4. Capturing and removing dust from its sources.

11	How the body prevents dust from entering the body & dust identification and hazards	<p>This comprises the lungs and associated organs (e.g. the nose). Air is breathed in through the nose, passes through the trachea (windpipe) and the bronchi into the two lungs. Within the lungs, the air enters many smaller passageways (bronchioli) and thence to one of 300 000 terminal sacs called alveoli. The alveoli are approximately 0.1 mm across, although the entrance is much smaller.</p> <p>On arrival in the alveoli, there is a diffusion of oxygen into the bloodstream through blood capillaries and an effusion of carbon dioxide from the bloodstream. While soluble dust which enters the alveoli will be absorbed into the bloodstream, insoluble dust (respirable dust) will remain permanently, leading to possible chronic illness.</p> <p>The whole of the bronchial system is lined with hairs, known as cilia. The cilia offer some protection against insoluble dusts. These hairs will arrest all non-respirable dust (above 5 µm) and, with the aid of mucus, pass the dust from one hair to a higher one and thus bring the dust back to the throat. (This is known as the ciliary escalator).</p> <p>It has been shown that smoking damages this action.</p> <p>The nose will normally trap large particles (greater than 20 mm) before they enter the trachea.</p> <p>Respirable dust tends to be long thin particles with sharp edges which puncture the alveoli walls. The puncture heals producing scar tissues which are less flexible than the original walls – this can lead to fibrosis.</p> <p>Such dusts include asbestos, coal, silica, some plastics and talc</p>
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12	MEWP / Scaffolding – Criteria for a safe system	<ul style="list-style-type: none"> • scaffolding must only be erected by competent people who have attended recognized training courses. • Any work carried out on the scaffold must be supervised by a competent person. • Any changes to the scaffold must be done by a competent person • Adequate toe boards, guardrails and intermediate rails must be fitted to prevent people or materials from falling • The scaffold must rest on a stable surface, uprights should have base plates and timber sole plates if necessary • The scaffold must have safe access and egress • Work platforms should be fully boarded with no tipping or tripping hazards • The scaffold should be sited away from or protected from traffic routes so that it is not damaged by vehicles • Lower level uprights should be prominently marked in red and white stripes • The scaffold should be properly braced, secured to the building or structure • Overloading of the scaffold must be avoided • The public must be protected at all stages of the work • Regular inspections of the scaffold must be made and recorded. • A mobile elevated work platform must only be operated by trained and competent persons • It must never be moved in the elevated position • It must be operated on level and stable ground with consideration being given for the stability and loading of floors • The tyres must be properly inflated and the wheels immobilized • Outriggers should be fully extended and locked in position • Due care must be exercised with overhead power supplies obstructions and adverse weather conditions • Warning signs should be displayed and barriers erected to avoid collisions
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13	Fire – types of fire and extinguishers	<p>Class A – fires which involve solid materials such as wood, paper, cardboard, textiles, furniture and plastics where there are normally glowing embers during combustion.</p> <p>Such fires are extinguished by cooling which is achieved using water</p> <p>Class B – fires which involve liquids or liquefied solids such as paints, oils or fats. These can be further subdivided into:</p> <p>Class B1 – fires which involve liquids that are soluble in water such as methanol. They can be extinguished by carbon dioxide, dry powder, water spray, light water and vaporizing liquids</p> <p>Class B2 – fires which involve liquids not soluble in water, such as petrol and oil. They can be extinguished by using foam, carbon dioxide, dry powder, light water and vaporizing liquid</p> <p>Class C – fires which involve gases such as natural gas or liquefied gases such as butane or propane. They can be extinguished using foam or dry powder in conjunction with water to cool any containers involved or nearby</p> <p>Class D – fires which involve metals such as aluminium or magnesium. Special dry powder extinguishers are required to extinguish these fires, which may contain powdered graphite or talc</p> <p>Class F – fires which involve high temperature cooking oils or fats in large catering establishments or restaurants</p> <p>Electrical fires – fires involving electrical equipment or circuitry do not constitute a fire class on their own, as electricity is a source of ignition that will feed a fire until switched off or isolated. But there are some pieces of equipment that can store, within capacitors, lethal voltages even when isolated. Extinguishers specifically designed for electrical use like carbon dioxide or dry powder should always be used for this type of fire hazard.</p> <p>Fire extinguishers are usually designed to tackle one or more class of fire.</p>
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14	Forklift – hazards	<p>The hazards related to fork lift trucks are wide ranging:</p> <p>Electric lift trucks are silent in operation and have a range of issues associated with battery charging, etc.</p> <p>Lift trucks can be relatively unstable due to the centre of gravity dynamics when transporting loads, especially up and down inclines or even across an incline.</p> <p>They are prone to tipping when they make contact with small pot holes or uneven surfaces and also when they attempt to turn at very tight angles.</p> <p>Moving with the forks raised to high also present hazards to pedestrians should they be in the same vicinity.</p> <p>Overloading – exceeding the rated capacity of a lift truck can also lead to mechanical failure of lifting parts with dramatic and injurious consequences.</p> <p>Poor visibility is often experienced when lift trucks are operated in a way when the transported load obstructs the operators vision</p> <p>Sliding loads can be problematic in transit, due mainly to the lack of friction between the layers of goods being carried</p> <p>Should such vehicle tip / topple and they were not fitted with roll over protection systems then driver injury is quite foreseeable.</p> <p>When operating in locations such as warehouses, should lighting levels not be sufficient then the loading / unloading of racks can generate problems when the operator mis-judges heights etc. This often leads to items falling off pallets at height.</p> <p>Normally there is minimum age requirements for operators in line with local road traffic regulations.</p> <p>Competency of operators is often called into question as normal vehicle drivers feel that they can operate such lift trucks in a safe manner – this is not the case and specialised training is normally required.</p>
15	Ionizing and non ionizing radiation	<p>Ionising radiation is emitted from radioactive materials, either in the form of directly ionising alpha and beta particles or indirectly ionising X- and gamma rays or neutrons. It has a high energy potential and an ability to penetrate, ionise and damage body tissue and organs.</p> <p>Non-ionising radiation includes ultraviolet, visible light (this includes lasers which focus or concentrate visible light), infrared and microwave radiations. Since the wavelength is relatively long, the energy present is too low to ionise atoms which make up matter.</p> <p>The action of non-ionising radiation is to heat cells rather than change their chemical composition.</p>

16	What is / define 'respirable dust'	<p>The fine dust is much more hazardous because it penetrates deep into the lungs and remains there – known as respirable dust.</p> <p>In rare cases, respirable dust enters the bloodstream directly causing damage to other organs.</p> <p>Examples of such fine dust are cement, granulated plastic materials and silica dust produced from stone or concrete dust.</p> <p>Repeated exposure may lead to permanent lung disease.</p>
17	Pro-active & reactive monitoring	<p>Proactive Monitoring – Looking Forward</p> <p>By taking the initiative before things go wrong, involves routine inspections and checks to make sure that standards and policies are being implemented and that controls are working.</p> <p>Risk assessment will also fall under this banner</p> <p>Reactive Monitoring – In response to</p> <p>After things go wrong, involves looking at historical events to learn from mistakes and see what can be put right to prevent a recurrence.</p> <p>A few examples here would be accident investigation, ill-health monitoring, etc.</p>

18	Lone working – Considerations	<p>Safe arrangements for lone workers are no different to organising the safety of other employees. It must be identified if the lone worker can adequately control the risks of the job precautions must be in place for both normal work and for emergencies such as fire, equipment failure or sudden illness.</p> <p>Other considerations:</p> <ul style="list-style-type: none"> • Does the lone worker have a safe way in and out of the workplace? • Can one person handle temporary access equipment, plant, goods or substances? • Is there a risk of violence? • Are women especially at risk? • Do young people work alone? • Check that lone workers have no medical condition that would make them unsuitable for working alone, seeking medical advice if necessary. • Training is particularly important where there is limited supervision lone workers need to be sufficiently experienced to fully understand the risks and precautions required employers should set limits of what may and may not be done whilst working alone. • Lone workers should be competent to deal with unusual or new circumstances beyond their training, and know when to stop and seek advice. <p>The extent of supervision depends on the risk and the ability of the lone worker to identify and handle health and safety issues.</p> <p>Employees new to a job may need to be accompanied until competencies are achieved. Supervisors may periodically visit to observe the work being done. There should be regular contact by radio, telephone or mobile phone automatic warnings should be activated if specific signals are not received at base other warnings that raise the alarm in the event of an emergency should be devised check that the lone worker has returned to base, or home, on completion of the work.</p> <p>Lone workers should be capable of responding correctly to an emergency and emergency procedures should be in place with the worker trained to respond</p> <p>Lone workers should have access to a First Aid Kit or facilities</p> <p>Risk assessment may indicate that the lone worker needs first aid training as this may have to be self administered</p>
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19	Accident investigation-information required in the report	<p>Introduction</p> <p>Summary</p> <p>Main body of the report</p> <ul style="list-style-type: none"> • Date and time of the incident • Injured person(s) • Witness information • Injuries / losses sustained and any time lost or likely to be lost • The details of the investigating team • The scenario • Direct causes • Underlying causes • Root causes • Cost incurred • Immediate remedial actions taken • Informed sources • Enforcement outcomes if any • Legal implications <p>Recommendations</p> <ul style="list-style-type: none"> • Management action plan • Likely cost <p>Distribution list</p> <p>Appendix</p> <ul style="list-style-type: none"> • Witness statements • Photographs • Reports submitted to interested parties • Insurance impact assessment
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20	First aid - main purpose and Considerations for first aid facility.	<p>The main purpose of first aid is to control the life-endangering situation and prevent further injury. For serious accidents, the main responsibility of those in the work area is to get professional help; ignorantly doing the wrong thing can cause further injury.</p> <p>Typical examples of the equipment and facilities a first-aid room may contain are:</p> <ul style="list-style-type: none"> • A sink with hot and cold running water; • Drinking water and disposable cups; • Soap and paper towels; • A store for first-aid materials; • Foot-operated refuse containers, lined with yellow, disposable clinical waste bags or a container suitable for the safe disposal of clinical waste; • An examination/medical couch with waterproof protection and clean pillows and blankets; • A chair; • A telephone or other communication equipment; and • A record book for recording incidents attended by a first-aider or appointed person.
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21	Manual handling risk assessment – what are the main considerations - outline	<p>Think LITE</p> <p>Load</p> <ul style="list-style-type: none"> • Size • Weight • Stability <p>Individual</p> <ul style="list-style-type: none"> • Medical fitness • Personal capabilities <p>Task</p> <ul style="list-style-type: none"> • Lifting • Lowering • Pushing • Pulling • Carrying <p>Environment</p> <ul style="list-style-type: none"> • Even surface or potholed • Inclines • Steps • Surface type - slippery
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22	Outline the possible health effects due to the exposure to high noise level	<p>The main auditory effects include:</p> <p>Acoustic trauma:</p> <p>Sudden hearing damage caused by short burst of extremely loud noise such as a gun shot.</p> <p>Tinnitus:</p> <p>Ringing or buzzing in the ear.</p> <p>Temporary hearing loss:</p> <p>Also known as temporary threshold shift (TTS) which occurs immediately after exposure to a high level of noise. There is gradual recovery when the affected person spends time in a quiet place. Complete recovery may take several hours.</p> <p>Permanent hearing loss:</p> <p>Permanent hearing loss, also known as permanent threshold shift (PTS), progresses constantly as noise exposure continues month after month and year after year. The hearing impairment is noticeable only when it is substantial enough to interfere with routine activities. At this stage, a permanent and irreversible hearing damage has occurred.</p> <p>Noise-induced hearing damage cannot be cured by medical treatment and worsens as noise exposure continues.</p> <p>When noise exposure stops, the person does not regain the lost hearing sensitivity. As the employee ages, hearing may worsen as "age-related hearing loss" adds to the existing noise-induced hearing loss.</p>
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23	Describe the factors to be considered when selecting suitable hearing protection to be used as an interim measure to reduce employees exposure to noise	<ol style="list-style-type: none"> 1. Select the right style. The two most common types of protection are muffs worn over the ears, and plugs worn in the ears. Muffs are comfortable for longer wearing times but are not effective when obstructed by eyeglasses or hats. Hearing plugs are less noticeable than muffs and their small size makes them convenient to put in a pocket. 2. Check the noise reduction rating (NRR). All hearing protection devices are rated according to how much noise (in decibels) they will reduce for the wearer. For general use, look for NRR of 25 or greater. Actual noise reduction will probably be about half of the manufacturer's NRR, because ratings were obtained under perfect lab conditions. 3. Consider cost. Disposable ear plugs are available for about \$1; muffs, about \$15. Disposable plugs are popular for short wearing periods but can be expensive if protection is needed on a regular basis. Reusable plugs or muffs may be a better choice for frequent wearers. 4. Use clean items. Disposable plugs cannot be washed or used again. Use warm, soapy water to wash reusable devices; thoroughly rinse and dry them, and store in a clean, covered container. 5. Look for hearing protection devices from reliable suppliers
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24	Outline with practical examples, the engineering means by which noise levels in the factory might be reduced	<p>Maintenance:</p> <ul style="list-style-type: none"> • Replacement or adjustment of worn or loose parts; • Balancing of unbalanced equipment; • Lubrication of moving parts; <p>Substitution of materials</p> <ul style="list-style-type: none"> • (e.g., plastic for metal), a good example being the replacement of steel sprockets in chain drives with sprockets made from flexible polyamide plastics. <p>Substitution of equipment:</p> <ul style="list-style-type: none"> • Electric for pneumatic (e.g. Hand tools); • Belt conveyors rather than roller conveyors. <p>Specification of quiet equipment.</p> <p>Substitution of parts of equipment:</p> <ul style="list-style-type: none"> • Modification of gear teeth, by replacing spur gears with helical gears; • Replace straight edged cutters with spiral cutters (e.g. Wood working machines; • Replace gear drives with belt drives; • Replace steel or solid wheels with pneumatic tyres. <p>Change of work methods</p> <ul style="list-style-type: none"> • Replace pneumatic tools by changing manufacturing methods, such as moulding holes in concrete rather than cutting after production of concrete component; • Select slowest machine speed appropriate for a job - also select large, slow machines rather than smaller faster ones; <p>Substitution of processes.</p> <ul style="list-style-type: none"> • Mechanical ejectors for pneumatic ejectors; • Hot for cold working; • Welding for riveting; <p>Substitution of mechanical power generation and transmission equipment</p> <ul style="list-style-type: none"> • Electric motors for internal combustion engines or gas turbines; <p>Replacement of worn moving parts</p> <p>Minimising the number of noisy machines running at any one time</p>
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25	Describe options for reducing the risk of electrical shock when using a portable electric drill	<p>Ensuring system not overloaded</p> <p>Pre-use inspections</p> <p>Portable appliance testing by competent person at suitable intervals</p> <p>Right tool for the job</p> <p>Competent users</p> <p>ISIT</p> <p>Equipment of the appropriate standard – CE marked</p> <p>Maintenance</p> <p>Reporting of defects and withdrawing faulty items</p>
26	<p>Identify 4 types of ignition source that may lead to a fire in the workplace and</p> <p>Outline ways of controlling each of the ignition sources identified</p>	<p>Electrical fires – ensure free ventilation points, no overloading of systems</p> <p>Electricity – inspection and maintenance</p> <p>Flammable substances present – sensible storage, minimal quantities, replace tops after use</p> <p>Friction between machine parts – engineering maintenance</p> <p>Grinding operations – hot work permit</p> <p>Leaking gases / substances – inspections of equipment, maintenance regimes</p> <p>Naked flames – hot work permit protocols</p> <p>Smoking materials – no smoking controls</p> <p>Spontaneous – safe systems of work</p> <p>Sun – shading</p>

27	Hazards associated with battery powered forklift and state the precautions in each case	<p>Silent operation – warning devices e.g. flashing beacons, designated working areas</p> <p>Instability – correct loading / safe systems of work</p> <p>Easy to use – proper key control – authorised users only</p> <p>Can achieve a reasonable level of speed – speed restrictor</p> <p>Electric shock – safe system of work for connecting and disconnecting batteries</p> <p>Fumes during charging – good battery maintenance, area venting, gas detectors, LEV or good natural ventilation (dilution)</p> <p>Chemical spillage – PPE, emergency eyewash, safe system of working and first aid facilities</p> <p>Lifting equipment failure – battery hoist – maintenance, inspection and thorough examination</p> <p>Fire – sensible storage of items in the area of charging, provision of suitable extinguishers</p> <p>Slips and trips on spillages or trailing cables – good housekeeping standards</p> <p>Heavy – foot protection</p>
28	<p>Define the term TARGET ORGAN within the context of occupational health and</p> <p>Outline the personal hygiene practices that should be followed to reduce the risk of ingestion of a hazardous substances</p>	<p>Target Organ</p> <p>The organ in the body on which a biological or chemical agent exerts its effects e.g. the target organ for asbestos is the lungs</p> <p>Personal Hygiene Factors</p> <p>Good hand washing regime prior to eating / handling food</p> <p>Eating food in designated areas away from contaminated workplaces</p> <p>No smoking without first washing hands</p> <p>Keeping hands away from the mouth area during work</p> <p>Properly worn PPE</p> <p>Properly serviced and cleaned PPE</p> <p>Suitable grade / type of PPE</p>

29	Mobile tower scaffold – points should be considered to ensure safe use	<p>Well maintained equipment</p> <p>Competent erectors</p> <p>Properly erected towers</p> <p>Method statements</p> <p>Risk assessments</p> <p>ISIT</p> <p>Safe use of outriggers</p> <p>Safe access / egress</p> <p>Appropriate ground conditions</p> <p>Safe systems of work</p>
30	Specific hazards that may be encountered in motor vehicle repair premises	<p>Moving vehicles</p> <p>Damaged vehicles</p> <p>Fuel leakage</p> <p>Electrical short circuits on vehicles</p> <p>Exhaust emissions</p> <p>Storage and use of flammable substances</p> <p>Naked flames – e.g. welding</p> <p>Various chemicals including used oil</p> <p>Slippery surfaces due to spillages</p> <p>Poor working postures</p> <p>Fall from height – working close to pits</p> <p>Use of lifting equipment – hoists and jacks and their suitable maintenance and capabilities</p> <p>Trailing cables e.g. inspection lamps</p> <p>Damaged bodywork</p> <p>Noise</p>

31	Control measures needed to ensure safety during excavation work	<p>Method statement</p> <p>Risk assessment</p> <p>ISIT</p> <p>Correct shoring</p> <p>Periodic inspection</p> <p>Traffic controls – not allowed to come too close</p> <p>Competent workers</p> <p>PPE</p> <p>Gas monitoring</p> <p>Access and egress to be safe and suitably located</p> <p>Safe systems of work</p>
32	Outline the terms ergonomics	<p>Ergonomics is a discipline that involves arranging the environment to fit the person in it. When ergonomics is applied correctly in the work environment, visual and musculoskeletal discomfort and fatigue are reduced significantly.</p> <p>Following ergonomic principles helps reduce stress and eliminate many potential injuries and disorders associated with the overuse of muscles, bad posture, and repeated tasks.</p> <p>This is accomplished by designing tasks, work spaces, controls, displays, tools, lighting, and equipment to fit the employee's physical capabilities and limitations.</p>
33	Outline the possible health effects that may be caused by a poor ergonomic design of the VDU workstation	<p>Musculoskeletal – neck, arms, hands</p> <p>WRULD</p> <p>Thrombosis</p> <p>Eyes – strain</p> <p>Stress and tension</p>

34	Outline main factors to be considered in the ergonomic assessment of a Workstation to be used by a VDU operator	<p>The workstation and environment</p> <ul style="list-style-type: none"> • Available space • Lighting levels • Heat / humidity • Noise • Glare • Power points – minimal trailing cables <p>The User</p> <ul style="list-style-type: none"> • Eyesight • Reach to equipment e.g. desk printer, files • Required duties e.g. data entry or order processing • Medical conditions e.g. back problems <p>The equipment</p> <ul style="list-style-type: none"> • Chair, lumbar support, 5 star base, height adjustable, arms • Table suitable and sufficient for users needs and equipment to be deployed • Screen – tilt, swivel, contrast, brightness adjustability • Keyboard moveable – height and position • Mouse
35	Rules to be followed to minimise the overturning of the forklift	<ol style="list-style-type: none"> 1. Competent operator 2. Good vision available 3. Speed not excessive 4. Turning angles not too tight 5. Approaching inclines (not going along them sideways) 6. Centre of gravity of the truck / load properly positioned 7. Not overloading the truck 8. Safe roadway – no potholes 9. Correct lift truck maintenance 10. Realistic weather conditions

36	Outline the procedure for a safe lifting of a load using a crane having ensured that the crane has been correctly selected and positioned for the operation	<p>Lifting plan</p> <p>Risk assessment</p> <p>ISIT</p> <p>Operator competency</p> <p>Rigger competency</p> <p>Signalmen / banksmen competency</p> <p>Stability of the load</p> <p>Use of tag lines as appropriate</p> <p>Safe working load</p> <p>Lifting equipment suitability for the task (inspected and tested etc)</p> <p>Surrounding obstruction – other cranes</p> <p>Overhead obstructions – e.g. power lines</p> <p>Safe area – no-one underneath – working</p> <p>Weather conditions</p>
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37	Outline factors to be considered when undertaking a manual handling assessment of the work undertaken by a baggage handler in a large busy airport	<p>Think LITE</p> <p>Load</p> <ul style="list-style-type: none"> • Varying sizes of luggage • Unknown weights • Unknown contents • Stability of baggage – centre of balance • Lodged / jammed baggage release <p>Individual</p> <ul style="list-style-type: none"> • Physical abilities • Medical conditions • Twisting body requirement <p>Task</p> <ul style="list-style-type: none"> • Lifting bags from one location e.g. belt, cage • Lowering e.g. from a cage onto a belt • Pulling e.g. jammed bag, the cart full of bags • Pushing – the cart of bags, helping a bag move along a conveyor <p>Environment</p> <ul style="list-style-type: none"> • Limited space, e.g. from receiving hatch • Lighting, e.g. may be bright sun • Heat e.g. outside on the apron • Air movement
38	Eight types of mechanical hazards associated with machinery	<ol style="list-style-type: none"> 1. Entanglement 2. Trapping 3. Collision / Impact 4. Crushing 5. Piercing / injection / stabbing / puncture 6. Friction / abrasion 7. Shearing / severing 8. Cutting 9. Drawing in 10. Ejection of particles

39	Outline factors to be considered when carrying out fire risk assessment of a workplace	<p>Identify the hazards - Hazards include:</p> <ul style="list-style-type: none"> • Anything that can start a fire, such as naked flames, heaters or commercial processes such as cookers or hot-air dryers • Anything that can burn in a fire, including piles of waste, display materials, textiles or other flammable products • Oxygen sources such as air conditioning, medical products or commercial oxygen supplies which might intensify a fire <p>Identify people at risk, These include:</p> <ul style="list-style-type: none"> • People who work close to or with fire hazards • People who work alone, or in isolated areas such as storerooms • Children or parents with babies • Elderly people • Disabled people <p>Evaluate, remove or reduce the risk. You should:</p> <ul style="list-style-type: none"> • Where possible, get rid of the fire hazards you identified – e.g. remove build-ups of waste - and reduce any hazards you can't remove entirely • Replace highly flammable materials with less flammable ones • Keep anything that can start a fire away from flammable materials • Have a safe-smoking policy for employees or customers who want to smoke in a designated area near your premises (smoking in enclosed spaces is banned) <p>Once you have reduced the risk as is far as practical, you need to look at any risk that can't be removed and decide what fire safety measures to provide.</p>
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40	Outline the requirement to ensure the safe evacuation of persons from a building in the event of fire	<p>Adequate fire identification system</p> <p>Means of raising the alarm quickly and effectively</p> <p>Warning devices</p> <p>Lighting and emergency lighting</p> <p>Signage</p> <p>Adequately protected routes</p> <p>Practice and Drills (ISIT)</p> <p>Adequate capacity of the exit routes</p> <p>Adequate capacity of the exit doors and final exit doors</p> <p>Unobstructed ways</p> <p>Fire marshals / wardens</p> <p>Fire protection</p> <p>Availability of extinguishers</p> <p>Facilities / arrangements for persons with disabilities</p> <p>Realistic travel distance to a place of safety</p>
41	Identify the possible routes of entry of biological organism to the body	<p>Ingestion – hand to mouth</p> <p>Injection - needlestick</p> <p>Inhalation - Breathing</p> <p>Absorption – Through mucus membrane,</p>
42	Outline the control measures that could be used to reduce the risk of infection from biological organism	<p>Keeping numbers likely to be exposed to a minimum</p> <p>Effective engineering controls</p> <p>Collective control measures - LEV</p> <p>Good personal hygiene</p> <p>PPE & RPE</p> <p>Effective containment – safe collection and storage</p> <p>Warning signage</p> <p>Emergency plans and practices</p> <p>ISIT</p> <p>Health surveillance</p> <p>Vaccinations where deemed necessary</p>

43	Explain the issues that needs to be addressed if the work needs to be carried out safely in a ladder	<p>Using the correct ladder</p> <p>Using competent trained persons</p> <p>Ensuring the length of the ladder is adequate</p> <p>Do not use the top three rungs</p> <p>Ladders used for access should project at least 1 m above the landing point and be tied; alternatively a safe and secure handhold should be available</p> <p>Stepladder - don't use the top two steps of a stepladder, unless a suitable handrail is available on the stepladder</p> <p>Stepladder - don't use the top three steps of swing-back or double-sided stepladders, where a step forms the very top of the stepladder;</p> <p>The ladder or stepladder rungs or steps are level.</p> <p>The weather is suitable - do not use them in strong or gusting winds</p> <p>Users to wear robust, sensible footwear (e.g. safety shoes/boots or trainers);</p> <p>Users to know how to prevent members of the public and other workers from using them;</p> <p>Users are fit - certain medical conditions or medication, alcohol or drug abuse could stop them from using ladders.</p> <p>On a ladder or stepladder, don't:</p> <ul style="list-style-type: none"> • Move them while standing on the rungs / steps; • Support them by the rungs or steps at the base; • Slide down the stiles; • Stand them on moveable objects, such as pallets, bricks, lift trucks, tower scaffolds, excavator buckets, vans, or mobile elevating work platforms; • Extend a ladder while standing on the rungs.
44	Outline the factors that could contribute to the development of work related upper limb disorder	<p>The risk factors that may cause or contribute to WRULDs can be grouped into three categories:</p> <ol style="list-style-type: none"> 1. Physical risk factors such as work involving awkward postures or repetitive movements – sometimes referred to as static muscle loading, overuse and repetition 2. Psychosocial risk factors, which are associated with levels of workplace stress; 3. Individual risk factors, which vary according to an individual's own characteristics.

45	Outline the factors that may arise from manual handling activities in relation to load, individual, task	<p>Load</p> <ul style="list-style-type: none"> • Physical size • Weight • Rigidity • Stability • Sharp edges • Temperature – hot / cold • State – dry, wet, slippery <p>Individual</p> <ul style="list-style-type: none"> • Physical abilities • Medical conditions • ISIT • Risk assessment • Provision of PPE <p>Task</p> <ul style="list-style-type: none"> • Lifting • Lowering / putting down • Pushing • Pulling • Distance to travel / carry • Is twisting the body essential
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46	<p>An employee is to use a petrol-driven chainsaw to fell a tree from ground level.</p> <p>(i) Outline the hazards faced by the employee in carrying out this task.</p> <p>(ii) List FIVE items of personal protective equipment that should be provided to, and used by, the employee.</p> <p>(iii) Outline control measures other than personal protective equipment that would be necessary to ensure the health and safety of the chainsaw operator and other persons involved in the operation.</p>	<p>1 Hazards</p> <ul style="list-style-type: none"> • Fire from petrol on hot parts • Entanglement in chain • Dust – respiratory • Chipping – impact • Noise from the sawing operation • Falling items – wood, branches, etc • Heat stress – working outside with PPE • Slip, trips and falls <p>2 PPE</p> <ul style="list-style-type: none"> • Head Protection – hard hat • Face protection – visor • Eye protection – goggles • Ear protection – muffs • Gloves – hand protection • Apron – chainmail – entanglement • Safety footwear • Overalls – body protection <p>3 Control Measures</p> <ul style="list-style-type: none"> • ISIT • Segregation • Risk Assessment • Method Statement • Safe Operating Procedures • Fire controls • Chemical controls including storage • First aid facilities and arrangements • Warning signs and signals plus awareness training • Welfare facilities – washing and changing
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47	Outline the means by which the risk of accidents from reversing vehicles within a workplace can be reduced	<p>ISIT – drivers and non-drivers</p> <p>Specific rules and their enforcement</p> <p>Turning Places – to avoid reversing</p> <p>One way system – consistency of traffic flow</p> <p>Banksmen – to assist / guide when manoeuvring</p> <p>Speed control</p> <p>No blind corners – always being in clear view</p> <p>Sufficient roadway widths if there has to be an interface with pedestrians</p> <p>Designated crossing places</p> <p>Visibility of vehicles – lights</p> <p>Visibility of pedestrians – high visibility vests</p> <p>Risk assessment</p>
48	<p>Identify:</p> <p>(i) TWO mechanical hazards associated with moving parts of machinery.</p> <p>(ii) TWO non-mechanical hazards to which a machine operator may be exposed.</p>	<p>Mechanical</p> <ol style="list-style-type: none"> 11. Entanglement 12. Trapping 13. Collision / Impact 14. Crushing 15. Piercing / injection / stabbing / puncture 16. Friction / abrasion 17. Shearing / severing 18. Cutting 19. Drawing in 20. Ejection of particles <p>Non-Mechanical</p> <ol style="list-style-type: none"> 1. Noise 2. Fume 3. Vibration 4. Heat / fire 5. Light – excessive 6. Radiation

49	Outline a hierarchy of control measures that may be used to reduce the risk of injury from dangerous parts of machinery.	<p>The hierarchy of control is:</p> <ul style="list-style-type: none"> • Elimination • Substitution • Contain risk at source • Isolation / Remove employee from risk • Reduce exposure to risk by safe working systems / practices • Warning signals • Personal protective equipment • Discipline / Supervision • ISIT
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50	<p>In relation to electrical safety, explain the meaning of the following terms:</p> <p>(i) 'isolation'</p> <p>(ii) 'earthing'</p> <p>(iii) 'reduced low voltage'</p> <p>(iv) 'over-current protection'.</p>	<p>Isolation</p> <p>Involves cutting off the electrical supply from all or a discrete section of the installation by separating the installation or section from every source of electrical energy.</p> <p>This is the normal practice so as to ensure the safety of persons working on or in the vicinity of electrical components which are normally live and where there is a risk of direct contact with live electricity.</p> <p>Earthing</p> <p>The purpose of earthing is to minimise the risk of receiving an electric shock if touching metal parts when a fault is present. This is achieved by providing a path for fault current to flow safely to earth, which would also cause the protective device (MCB, fuses) to disconnect the circuit removing the danger.</p> <p>Reduced low voltage</p> <p>When the working conditions are relatively severe either due to wet conditions or heavy and frequent usage of equipment, reduced voltage systems should be used.</p> <p>All portable tools used on construction sites, vehicle washing stations or near swimming pools, should operate on 110 V or less, preferably with a centre tapped to earth at 55 V. This means that while the full 110 V are available to power the tool, only 55 V are available to shock the worker.</p> <p>At this level of voltage, the effect of any electric shock should not be severe. For lighting, even lower voltages can be used and are even safer. Another way to reduce the voltage is to use battery (cordless) operated hand tools.</p> <p>Over current protection</p> <p>In electricity supply, over-current or excess current is a situation where a larger than intended electric current exists through a conductor, leading to excessive generation of heat and the risk of damaging infrastructure and equipment and causing fires.</p> <p>Possible causes for over-current include short circuit, excessive load, and incorrect design.</p> <p>Fuses, circuit breakers, temperature sensors and current limiters are commonly used protection mechanisms to control the risks of over-current.</p>
51	<p>The hazards associated specifically with battery powered lift trucks</p>	<p>Quiet operation</p> <p>Speed</p> <p>Stability / instability</p> <p>Battery changing</p> <p>Battery charging – fire, explosion, chemical spills</p> <p>Electrocution</p>

52	Precautions that may be needed to reduce the risk to pedestrians in areas where lift trucks operate	<p>Risk assessment</p> <p>Segregation</p> <p>Crossing points designated</p> <p>Traffic control – banksmen</p> <p>Warning signs</p> <p>Vehicle warning devices – lights, beacons, audible devices</p> <p>High visibility clothing</p> <p>One way system</p> <p>Speed controls</p> <p>ISIT</p>
53	The effects on the human body from a severe electric shock	<p>Electric shock is a possible outcome of electric current flowing through the human body, which causes disturbance in the normal functions of the body's organs and nervous system.</p> <p>Death occurs if the rhythm of the heart is upset for long enough to stop the flow of blood to the brain.</p> <p>It is crucial to act quickly in such emergencies</p> <p>Fortunately, death and serious injury from electric shock are relatively rare.</p> <p>Most electrical injuries, in fact, arise from burns received at the point of contact with the body</p>
54	How can earthing reduce the risk of receiving an electric shock	<p>Provision of effective earthing, to protect against indirect contact, can be achieved in a number of ways, including connecting the extraneous conductive parts of premises (water pipe etc) to the main earthing terminal of the electrical installation.</p> <p>This would create an 'equipotential' zone and eliminate the risk of shock, if a person touched two different parts of the metalwork, liable to be charged at different voltages, under earth fault conditions.</p> <p>It is crucial to ensure that in the event of earth fault, the electricity supply is automatically disconnected.</p>

55	Types of guards and safeguarding devices that may be used to minimise the risk of contact with dangerous machine parts	<p>Guards</p> <ul style="list-style-type: none"> • Fixed • Interlocked • Adjustable • Self-adjusting • Photoelectric <p>Safeguards</p> <ul style="list-style-type: none"> • Two-handed • Presence sensing • Pullback • Restraint • Safety controls (e.g. tripwire cable or two-hand controls) • Gates • Push-sticks • Jigs
56	The types of biological agents	<p>Fungus</p> <ul style="list-style-type: none"> • Fungi are small organisms that produce spores. • It is the spores that may be inhaled or enter the body through the skin. <p>Bacteria</p> <ul style="list-style-type: none"> • Bacteria are very small single cell organisms, which invade and infect humans. • Destroyed by the employment of antibiotics. However, antibiotic resistant bacteria are developing and are becoming increasingly difficult to treat. <p>Virus</p> <ul style="list-style-type: none"> • Recognised as a major source of illness, although usually of short duration. • Viruses are microscopic organisms which multiply in the living cells of their hosts. • They do not multiply in food, although food may be the vehicle that introduces the virus into the host. • Some ten viral particles are sufficient to cause illness, thus it is highly infective. • They are minute organisms which develop within the cells of the body e.g. the common cold, hepatitis, HIV.

57	What are the principles of the fire triangle	<p>Remove any one of the three principle elements and the fire will eventually die</p> <ul style="list-style-type: none"> • Suffocation • Starvation • Smothering • Cooling
58	Methods of heat transfer and how each contributes to the spread of fire	<p>Direct contact</p> <p>Radiation</p> <p>Conduction</p> <p>Convection</p>